Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: September 15, 2006

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: NPDES Permits and Engineering Section / Permit Comments. **Please include the permit number in all comment letters.**

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by October 16, 2006 or received in our office by 5:00 p.m. on October 19, 2006. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.mo.gov/env/wpp/index.html, or at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: September 15, 2006
Permit Number: MO-0040843
Southwest Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
Marshfield WWTF 325 Brinkley Road, Marshfield, MO 65706	City of Marshfield 798 S. Marshall Street, Marshfield, MO 65706
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Legal Description: SE¼, NE¼, Sec.33 , T31N, R18W, Webster County Latitude/Longitude: +3721426/-09254477 Receiving Stream: Unnamed tributary to West Fork Niangua River (U)	

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0040843
Owner:	City of Marshfield
Address:	798 S. Marshall Street, Marshfield, MO 65706
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Marshfield WWTF
Facility Address:	325 Brinkley Road, Marshfield, MO 65706
Legal Description:	SE¼, NE¼, Sec.33 , T31N, R18W, Webster County
Latitude/Longitude:	+3721426/-09254477
Receiving Stream:	Unnamed tributary to West Fork Niangua River (U)
First Classified Stream and ID:	West Fork Niangua River (P) (01175)
USGS Basin & Sub-watershed No.:	(10290110-010001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #001 & #003 - POTW - SIC #4952
Stormwater clarifier
Design flow is 3.92 MGD. Actual flow is dependent upon rainfall.

Outfall #002 – POTW – SIC #4952
Complete Mix Activated Sludge / secondary clarifiers / tertiary filters / chlorination / sludge storage basins / sludge is land applied.
Design organic population equivalent is 15,000.
Design average daily flow is 1.5 million gallons per day
Design sludge production is 210 dry tons/year

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until three (3) years from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 & #003						
Flow	MGD	*		*	Once/discharge/day	24 hr.estimate
Biochemical Oxygen Demand$_5$**	mg/L		45		Once/discharge/day	24 hr. composite
Total Suspended Solids**	mg/L		45		Once/discharge/day	24 hr. composite
pH – Units	SU	***		***	once/discharge/day	grab
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Outfall #002						
Flow	MGD	*		*	Once/day	24 hr. total
Biochemical Oxygen Demand$_5$**	mg/L		15	10	Once/week	24 hr. composite
Total Suspended Solids**	mg/L		20	15	Once/week	24 hr. composite
pH – Units	SU	***		***	Once/week	grab
Fecal Coliform (Note 1)	#/100mL	1000		400	Once/week	grab
Total Residual Chlorine as CL_2 (Note 2)	mg/L	0.01		0.01	Once/week	grab
Ammonia as N, Total	mg/L				Once/week	grab
(May – October)		2.5		1.4		
(November – April)		3.5		2.2		
Temperature	ºC	*		*	Once/week	grab
Oil & Grease	mg/L	20		15	Once/month	grab
Cyanide, Amenable to Chlorination	mg/L	0.005			Once/month	24 hr. composite
Chromium, Total Recoverable	mg/L	0.042			Once/month	24 hr. composite
Copper, Total Recoverable	mg/L	0.037			Once/month	24 hr. composite
Lead, Total Recoverable	mg/L	0.029			Once/month	24 hr. composite
Zinc, Total Recoverable	mg/L	0.440			Once/month	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until three (3) years from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Conditions)			Once/year in June	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Downstream Monitoring						
Dissolved Oxygen	mg/L	*		*	Once/quarter****	grab
Ammonia as N, Total	mg/L	*		*	Once/quarter****	grab
Temperature	°C	*		*	Once/quarter****	grab
pH	SU	*		*	Once/quarter****	grab
Hardness	mg/L	*		*	Once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective three (3) years from the date of issuance of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 & #003						
Flow	MGD	*		*	Once/discharge/day	24 hr. estimate
Biochemical Oxygen Demand$_5$**	mg/L		45		Once/discharge/day	24 hr. composite
Total Suspended Solids**	mg/L		45		Once/discharge/day	24 hr. composite
pH – Units	SU	***		***	Once/discharge/day	grab
Temperature	ºC	*		*	Once/discharge/day	grab
Total Ammonia Nitrogen	mg/L	*		*	Once/discharge/day	grab

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective three (3) years from the date of issuance of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002						
Flow	MGD	*		*	Once/day	24 hr. total
Biochemical Oxygen Demand$_5$**	mg/L		15	10	Once/week	24 hr. composite
Total Suspended Solids**	mg/L		20	15	Once/week	24 hr. composite
pH – Units	SU	***		***	Once/week	grab
Fecal Coliform (Note 1)	#/100mL	1000		400	Once/week	grab
Total Residual Chlorine (Note 2)	mg/L	0.017		0.008	Once/week	grab
Ammonia as N, Total	mg/L				Once/week	grab
(March – May)		6.8		3.4		
(June – August)		3.1		1.6		
(September – November)		6.8		3.4		
(December – February)		7.5		3.7		
Temperature	ºC	*		*	Once/week	grab
Oil & Grease	mg/L	15		10	Once/month	grab
Nitrate as N	mg/L	*		*	Once/month	grab
Cyanide, Amenable to Chlorination	mg/L	0.008		0.004	Once/month	24 hr. composite
Cadmium, Total Recoverable	mg/L	*		*	Once/month	24 hr. composite
Chromium (III), Total Recoverable	mg/L	0.2		0.1	Once/month	24 hr. composite
Chromium (VI), Total Recoverable	mg/L	0.015		0.008	Once/month	24 hr. composite
Copper, Total Recoverable	mg/L	0.017		0.008	Once/month	24 hr. composite
Lead, Total Recoverable	mg/L	0.009		0.005	Once/month	24 hr. composite
Nickel, Total Recoverable	mg/L	*		*	Once/month	24 hr. composite
Zinc, Total Recoverable	mg/L	0.17		0.08	Once/month	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective three (3) years from the date of issuance of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Conditions)			Once/year in June	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Downstream Monitoring						
Dissolved Oxygen	mg/L	*		*	Once/quarter****	grab
Ammonia as N, Total	mg/L	*		*	Once/quarter****	grab
Temperature	°C	*		*	Once/quarter****	grab
pH	SU	*		*	Once/quarter****	grab
Hardness	mg/L	*		*	Once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data shall be reported to ensure removal efficiency requirements are met.

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

**** Sample once per quarter in the months of March, June, September, and December.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable all year.

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

(a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.

(b) Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.

(c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit.**

(d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (continued)

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

9. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
002	100	Annually	24 hour composite	June

   (a) Test Schedule and Follow-Up Requirements
      (1) Perform a SINGLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
         (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
         (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
         (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
         (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
         (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
         (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
         (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
         (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
         (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
         (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
         (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
         (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
         (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.

C. SPECIAL CONDITIONS (continued)

(2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
   (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
   (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.

(5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(10) Submit a concise summary in tabular format of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other Federal guidelines as appropriate or required.

(2) To pass a multiple-dilution test:
   (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
   (b) For facilities with an AEC greater than 30% the LC50 concentration must be greater than 100%; **AND**,
   (c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

(1) Test Type: Acute Static non-renewal

C. SPECIAL CONDITIONS (continued)

(2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS.

(3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(5) Single-dilution tests will be run with:
   (a) Effluent at the AEC concentration;
   (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
   (c) reconstituted water.

(6) Multiple-dilution tests will be run with:
   (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
   (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
   (c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Date of Fact Sheet: August 17, 2006

Date of Public Notice: September 15, 2006

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0040843

FACILITY NAME: Marshfield WWTF

OWNER NAME: City of Marshfield

LOCATION: SE¼, NE¼, Sec. 33, T31N, R18W, Webster County

RECEIVING STREAM: Unnamed tributary to West Fork Niangua River

FACILITY CONTACT PERSON: John Cooper TELEPHONE: (417) 859-4224

FACILITY DESCRIPTION

Outfall #001 & #003 is a stormwater clarifier with a design flow of 3.92 MGD; however, actual flow is dependant upon rainfall. Outfall #002 – main outfall – is a WWTF with extended aeration, secondary clarifiers, tertiary filters, and chlorination with a design flow of 1.5 MGD. Sludge is stored in a basin and is land applied.

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Permits in Missouri are issued by the Director of the Department of Natural Resources under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended).

10 CSR 20-7.031 Missouri Water Quality Standards, Missouri Department of Natural Resources (the Department) "defines the Clean Water Commission water quality objectives in terms of water uses to be maintained and the criteria to protect those uses." The receiving stream's beneficial water uses to be maintained is general criteria; however, it is a losing stream.

To protect these beneficial uses and the water quality of the receiving stream, effluent limitations are being established under federal and state laws.

EFFLUENT LIMIT DERIVATION & RATIONALE

A Water Quality Review Sheet (WQRS) was completed by department staff on June 12, 2006. The WQRS indicated that parameters and effluent limits for Outfalls #001 & #003 should remain the same. The WQRS also indicated that the parameters and effluent limitations for Outfall #002 along with instream (above and below) monitoring should be modified. The new permit reflects the WQRS recommendations for all outfalls and instream monitoring.

This permit will be issued for a period of five years.

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES PERMITS AND ENGINEERING SECTION

Water Quality Review Sheet

Determination of Effluent Limits

FACILITY INFORMATION

FACILITY NAME: City of Marshfield WWTF NPDES #: MO-0040843

FACILITY TYPE/DESCRIPTION: Extended aeration facility with secondary clarification, tertiary filtration, and chlorine disinfection; sludge is land applied. Expansion of existing WWTF from 1.0 MGD to 1.5 MGD

EDU: Ozark/Osage Drainage 8-DIGIT HUC: 10290110 COUNTY: Webster

LEGAL DESCRIPTION: SE NE, Sec. 33, T31N, R18W LATITUDE/LONGITUDE: +3721426/-09254477

WATER QUALITY HISTORY: In compliance with effluent limitations; no recent MDNR stream surveys have been conducted for this facility.

OUTFALL CHARACTERISTICS

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	6.08	Primary	West Fork Niangua River	
002	2.33	Advanced	West Fork Niangua River	
003	6.08	Primary	West Fork Niangua River	

RECEIVING WATERBODY INFORMATION

WATERBODY	CLASS	WBID	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)	*DESIGNATED USES
West Fork Niangua River	U	----	0.0	0.0	0.0	General Criteria, Losing
West Fork Niangua River	P	1175	0.1	0.1	1.0	AQL, LWW, WBC

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warm water Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: WQRS and associated water quality based effluent limits (WQBELs) have been developed to reflect the proposed facility expansion and to incorporate revised water quality criteria for total ammonia nitrogen and total recoverable metals. West Fork Niangua River has been determined to be critical habitat for the federally listed (threatened) and state listed (endangered) Niangua Darter [*Etheostoma Nianguae*].

MIXING CONSIDERATIONS

Mixing Zone (MZ): Not allowed, 7Q10 less than 0.1 cfs [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

Zone of Initial Dilution (ZID): Not allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

PERMIT LIMITS AND INFORMATION

TMDL WATERSHED: (Y OR N) [N] W.L.A. STUDY CONDUCTED: (Y OR N) [N] DISINFECTION REQUIRED: (Y OR N) [Y] USE ATTAINABILITY ANALYSIS: (Y OR N) [N]

OUTFALL #001 – Wet Weather Overflow

WET TEST (Y OR N): [N] FREQUENCY: _____ A.E.C. _____ LIMIT: _____

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
FLOW	MGD	*		*	NOTE 2
BIOCHEMICAL OXYGEN DEMAND (BOD_5)	MG/L		45		NOTE 2
TOTAL SUSPENDED SOLIDS (TSS)	MG/L		45		NOTE 2
PH	SU	6 – 9		6 – 9	NOTE 2
TEMPERATURE	^{O}C	*		*	NOTE 2
TOTAL AMMONIA NITROGEN	MG/L	*		*	NOTE 2

* – Monitoring Requirement Only, Note 2 – Once/Discharge/Day

OUTFALL #002 – Main Facility Outfall

WET TEST (Y OR N): [Y] FREQUENCY: ONCE/YEAR A.E.C. 100 % LIMIT: 10 CSR 20-7. 031(3)(I)

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
FLOW	MGD	*		*	ONCE/DAY
TEMPERATURE	^{O}C	*		*	ONCE/WEEK
BIOCHEMICAL OXYGEN DEMAND (BOD_5)**	MG/L		15	10	ONCE/WEEK
TOTAL SUSPENDED SOLIDS**	MG/L		20	15	ONCE/WEEK
PH	SU	6 – 9		6 - 9	ONCE/WEEK
FECAL COLIFORM	NOTE 1	1000		400	ONCE/WEEK
TOTAL RESIDUAL CHLORINE	MG/L	0.017		0.008	ONCE/WEEK
TOTAL AMMONIA N					
(MAR 1 – MAY 31)	MG /L	6.8		3.4	ONCE/WEEK
(JUN 1 – AUG 31)	MG /L	3.1		1.6	ONCE/WEEK
(SEP 1 – NOV 30)	MG /L	6.8		3.4	ONCE/WEEK
(DEC 1 – FEB 29)	MG /L	7.5		3.7	ONCE/WEEK

OUTFALL #002 (cont.)

OIL & GREASE	MG/L	15		10	ONCE/MONTH
NITRATE AS N	MG/L	*		*	ONCE/MONTH
CYANIDE, AMENABLE TO CHLORINATION	µg/L	8.1		4.0	ONCE/MONTH
CADMIUM, TOTAL REC.	µg/L	*		*	ONCE/MONTH
CHROMIUM (III), TOTAL REC.	µg/L	197		98	ONCE/MONTH
CHROMIUM (VI), TOTAL REC.	µg/L	15.3		7.6	ONCE/MONTH
COPPER, TOTAL REC.	µg/L	17.0		8.5	ONCE/MONTH
LEAD, TOTAL REC.	µg/L	9.3		4.7	ONCE/MONTH
NICKEL, TOTAL REC.	µg/L	*		*	ONCE/MONTH
ZINC, TOTAL REC.	µg/L	169		84	ONCE/MONTH

Note 1 – Colonies/100 mL, * – Monitoring Requirement Only

** – This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data shall be reported to ensure removal efficiency requirements are met.

OUTFALL #003 – Wet Weather Overflow

WET TEST (Y OR N): N FREQUENCY: _____ A.E.C. _____ LIMIT: _____

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MONITORING FREQUENCY
FLOW	MGD	*		*	NOTE 2
BIOCHEMICAL OXYGEN DEMAND (BOD_5)	MG/L		45		NOTE 2
TOTAL SUSPENDED SOLIDS (TSS)	MG/L		45		NOTE 2
PH	SU	6 – 9		6 – 9	NOTE 2
TEMPERATURE	^{O}C	*		*	NOTE 2
TOTAL AMMONIA NITROGEN	MG/L	*		*	NOTE 2

* – Monitoring Requirement Only, Note 2 – Once/Discharge/Day

RECEIVING WATER MONITORING REQUIREMENTS

Site S1 – Downstream monitoring location

PARAMETER	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
DISSOLVED OXYGEN	Once/Quarter	Grab	West Fork Niangua River one-quarter (1/4) mile downstream of Outfall #002
TOTAL AMMONIA NITROGEN	Once/Quarter	Grab	
TEMPERATURE	Once/Quarter	Grab	
PH	Once/Quarter	Grab	
HARDNESS	Once/Quarter	Grab	

DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations were calculated using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Outfall #001 – Wet Weather Overflow

- **Biochemical Oxygen Demand (BOD_5).** 45 mg/L weekly average [10 CSR 20-7.015(8)(B)3.E.(I)].
- **Total Suspended Solids (TSS).** 45 mg/L weekly average [10 CSR 20-7.015(8)(B)3.E.(I)].
- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)3.E.(II)].
- **Temperature.** Monitoring requirement only.
- **Total Ammonia Nitrogen.** Monitoring requirement only.

Outfall #002 – Main Facility Outfall

- **Biochemical Oxygen Demand (BOD_5).** 10 mg/L monthly average, 15 mg/L weekly average [10 CSR 20-7.015(4)(B)1.]
- **Total Suspended Solids (TSS).** 15 mg/L monthly average, 20 mg/L weekly average [10 CSR 20-7.015(4)(B)2.]
- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015 (4)(B)3.]
- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/ 100 mL, daily maximum of 1000 colonies/100 mL [10 CSR 20-7.015(4)(B)4.] Future renewals of the facility operating permit will contain effluent limitations for E. coli which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L

  Chronic WLA: $C_e = ((2.33 + 0.0)10 – (0.0 * 0.0))/2.33$
  $C_e = 10$ µg/L

  Acute WLA: $C_e = ((2.33 + 0.0)19 – (0.0 * 0.0))/2.33$
  $C_e = 19$ µg/L

LTA_c = 10 µg/L (0.527) = **5.3 µg/L** [CV = 0.6, 99th Percentile]
LTA_a = 19 µg/L (0.321) = 6.1 µg/L [CV = 0.6, 99th Percentile]

MDL = 5.3 µg/L * 3.11 = 16.5 µg/L [CV = 0.6, 99th Percentile]
AML = 5.3 µg/L * 1.55 = 8.2 µg/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Mar 1 – May 31	16	7.8	2.8	12.1
Jun 1 – Aug 31	28	7.8	1.3	12.1
Sept 1 – Nov 30	16	7.8	2.8	12.1
Dec 1 – Feb 29	6	7.8	3.1	12.1

Spring: Mar 1 – May 31, Summer: Jun 1 – Aug 31, Fall: Sep 1 – Nov 30, Winter: Dec 1 – Feb 29

Spring – Chronic WLA = 2.8 mg/L, Acute WLA = 12.1 mg/L. No mixing zone is allowed; chronic criteria must be met at the classified segment of West Fork Niangua River.

LTA_c = 2.8 mg/L (0.780) = 2.2 mg/L [CV = 0.6, 99th Percentile, n = 30]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 2.2 mg/L * 3.11 = 6.8 mg/L [CV = 0.6, 99th Percentile]
AML = 2.2 mg/L * 1.55 = 3.4 mg/L [CV = 0.6, 95th Percentile, n = 4]

Summer – Chronic WLA = 1.3 mg/L, Acute WLA = 12.1 mg/L. No mixing zone is allowed; chronic criteria must be met at the classified segment of West Fork Niangua River.

LTA_c = 1.3 mg/L (0.780) = 1.0 mg/L [CV = 0.6, 99th Percentile, n = 30]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 1.0 mg/L * 3.11 = 3.1 mg/L [CV = 0.6, 99th Percentile]
AML = 1.0 mg/L * 1.55 = 1.6 mg/L [CV = 0.6, 95th Percentile, n = 4]

Fall – Chronic WLA = 2.8 mg/L, Acute WLA = 12.1 mg/L. No mixing zone is allowed; chronic criteria must be met at the classified segment of West Fork Niangua River.

LTA_c = 2.8 mg/L (0.780) = 2.2 mg/L [CV = 0.6, 99th Percentile, n = 30]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 2.2 mg/L * 3.11 = 6.8 mg/L [CV = 0.6, 99th Percentile]
AML = 2.2 mg/L * 1.55 = 3.4 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter – Chronic WLA = 3.1 mg/L, Acute WLA = 12.1 mg/L. No mixing zone is allowed; chronic criteria must be met at the classified segment of West Fork Niangua River.

LTA_c = 3.1 mg/L (0.780) = 2.4 mg/L [CV = 0.6, 99th Percentile, n = 30]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 2.4 mg/L * 3.11 = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L * 1.55 = 3.7 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Mar 1 – May 31	6.8	3.4
Jun 1 – Aug 31	3.1	1.6
Sept 1 – Nov 30	6.8	3.4
Dec 1 – Feb 29	7.5	3.7

- **Oil & Grease.** Conventional pollutant, effluent limitation for the protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Nitrate (NO_3) as N.** Monitoring requirement only.
- **Cyanide, Amenable to Chlorination.** Warm-water Protection of Aquatic Life CCC = 5 µg/L, CMC = 22 µg/L [10 CSR 20-7.031, Table A]. Background CN = 0.0 µg/L

  Chronic WLA: $C_e = ((2.33 + 0.0)5 – (0.0 * 0.0))/2.33$
  C_e = 5 µg/L

  Acute WLA: $C_e = ((2.33 + 0.0)22 – (0.0 * 0.0))/2.33$
  C_e = 22 µg/L

  LTA_c = 5 µg/L (0.527) = **2.6 µg/L** [CV = 0.6, 99th Percentile]
  LTA_a = 22 µg/L (0.321) = 7.1 µg/L [CV = 0.6, 99th Percentile]

  MDL = 2.6 µg/L * 3.11 = 8.1 µg/L [CV = 0.6, 99th Percentile]
  AML = 2.6 µg/L * 1.55 = 4.0 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Metals.** Effluent limitations for total recoverable chromium, copper, lead, and zinc have been recalculated using the recently revised water quality criteria for these metals. Monitoring only requirements have been established for total recoverable cadmium and nickel so that reasonable potential analyses may be conducted at the next permit renewal.

  Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (EPA 823-B-96-007). Protection of aquatic life criteria apply and water hardness = 162.5 mg/L.

  Due to the absence of contemporaneous effluent and in-stream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS		WQBEL
	ACUTE	CHRONIC	
Chromium III	0.316	0.860	**Yes**
Chromium VI	0.982	0.962	**Yes**
Copper	0.960	0.960	**Yes**
Lead*	0.720	0.720	**Yes**
Zinc	0.978	0.986	**Yes**

*Conversion factor for Pb is hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162.5 mg/L.

Chromium III (Cr III): Protection of Aquatic Life CCC = 103 µg/L, CMC = 794 µg/L [10 CSR 20-7.031, Table A]; Background Cr III = 0.0 µg/L

C (Chronic) = CCC/CF = 103/0.860 = 120 µg/L
C (Acute) = CMC/CF = 794/0.316 = 2513 µg/L

Chronic WLA: $C_e = ((2.33 + 0.0)120 – (0.0 * 0.0))/2.33$
$C_e = 120$ µg/L

Acute WLA: $C_e = ((2.33 + 0.0)2513 – (0.0 * 0.0))/2.33$
$C_e = 2513$ µg/L

LTA_c = 120 µg/L (0.527) = **63.2** µg/L [CV = 0.6, 99th Percentile]
LTA_a = 2513 µg/L (0.321) = 807 µg/L [CV = 0.6, 99th Percentile]

MDL = 63.2 µg/L * 3.11 = 197 µg/L [CV = 0.6, 99th Percentile]
AML = 63.2 µg/L * 1.55 = 98 µg/L [CV = 0.6, 95th Percentile, n = 4]

Chromium VI (Cr VI): Protection of Aquatic Life CCC = 10 µg/L, CMC = 15 µg/L [10 CSR 20-7.031, Table A]; Background Cr VI = 0.0 µg/L

C (Chronic) = CCC/CF = 10/0.962 = 10.4 µg/L
C (Acute) = CMC/CF = 15/0.982 = 15.3 µg/L

Chronic WLA: $C_e = ((2.33 + 0.0)10.4 – (0.0 * 0.0))/2.33$
$C_e = 10.4$ µg/L

Acute WLA: $C_e = ((2.33 + 0.0)15.3 – (0.0 * 0.0))/2.33$
$C_e = 15.3$ µg/L

LTA_c = 10.4 µg/L (0.527) = 5.48 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 15.3 µg/L (0.321) = **4.91 µg/L** [CV = 0.6, 99th Percentile]

MDL = 4.91 µg/L * 3.11 = 15.3 µg/L [CV = 0.6, 99th Percentile]
AML = 4.91 µg/L * 1.55 = 7.6 µg/L [CV = 0.6, 95th Percentile, n = 4]

Copper (Cu): Protection of Aquatic Life CCC = 10 µg/L, CMC = 20 µg/L [10 CSR 20-7.031, Table A]; Background Cu = 0.0 µg/L

C (Chronic) = CCC/CF = 10/0.960 = 10.4 µg/L
C (Acute) = CMC/CF = 20/0.960 = 20.8 µg/L

Chronic WLA: $C_e = ((2.33 + 0.0)10.4 – (0.0 * 0.0))/2.33$
$C_e = 10.4$ µg/L

Acute WLA: $C_e = ((2.33 + 0.0)20.8 – (0.0 * 0.0))/2.33$
$C_e = 20.8$ µg/L

LTA_c = 10.4 µg/L (0.527) = **5.48** µg/L [CV = 0.6, 99th Percentile]
LTA_a = 20.8 µg/L (0.321) = 6.68 µg/L [CV = 0.6, 99th Percentile]

MDL = 5.48 µg/L * 3.11 = 17.0 µg/L [CV = 0.6, 99th Percentile]
AML = 5.48 µg/L * 1.55 = 8.5 µg/L [CV = 0.6, 95th Percentile, n = 4]

Lead (Pb): Protection of Aquatic Life CCC = 4 µg/L, CMC = 100 µg/L [10 CSR 20-7.031, Table A]; Background Pb = 0.0 µg/L

C (Chronic) = CCC/CF = 4/0.720 = 5.6 µg/L
C (Acute) = CMC/CF = 100/0.720 = 139 µg/L

Chronic WLA: $C_e = ((2.33 + 0.0)5.6 – (0.0 * 0.0))/2.33$
$C_e = 5.6$ µg/L

Acute WLA: $C_e = ((2.33 + 0.0)139 – (0.0 * 0.0))/2.33$
$C_e = 139$ µg/L

LTA_c = 5.6 µg/L (0.527) = **3.0** µg/L [CV = 0.6, 99th Percentile]
LTA_a = 139 µg/L (0.321) = 44.6 µg/L [CV = 0.6, 99th Percentile]

MDL = 3.0 µg/L * 3.11 = 9.3 µg/L [CV = 0.6, 99th Percentile]
AML = 3.0 µg/L * 1.55 = 4.7 µg/L [CV = 0.6, 95th Percentile, n = 4]

Zinc (Zn): Protection of Aquatic Life CCC = 151 µg/L, CMC = 165 µg/L [10 CSR 20-7.031, Table A]; Background Zn = 0.0 µg/L

C (Chronic) = CCC/CF = 151/0.986 = 153 µg/L
C (Acute) = CMC/CF = 165/0.978 = 169 µg/L

Chronic WLA: $C_e = ((2.33 + 0.0)153 – (0.0 * 0.0))/2.33$
$C_e = 153$ µg/L

Acute WLA: $C_e = ((2.33 + 0.0)169 – (0.0 * 0.0))/2.33$
$C_e = 169$ µg/L

LTA_c = 153 µg/L (0.527) = 80.6 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 169 µg/L (0.321) = **54.2 µg/L** [CV = 0.6, 99th Percentile]

MDL = 54.2 µg/L * 3.11 = 169 µg/L [CV = 0.6, 99th Percentile]
AML = 54.2 µg/L * 1.55 = 84 µg/L [CV = 0.6, 95th Percentile, n = 4]

Outfall #003 – Wet Weather Overflow

- **Biochemical Oxygen Demand (BOD_5).** 45 mg/L weekly average [10 CSR 20-7.015(8)(B)3.E.(I)].
- **Total Suspended Solids (TSS).** 45 mg/L weekly average [10 CSR 20-7.015(8)(B)3.E.(I)].
- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)3.E.(II)].
- **Temperature.** Monitoring requirement only.
- **Total Ammonia Nitrogen.** Monitoring requirement only.

Reviewer: John Hoke
Date: June 12, 2006
Unit Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.